Twitter in Congress: Outreach vs Transparency

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Abstract

The paper provides some support in favor of Twitter adoption being driven by *outreach* reasons, rather than the well-popularized *transparency* motive. Furthermore, outreach considerations factor into a Republican's perceived benefit more than a Democrat's.

Keywords: Government communication, diffusion of technology, political marketing, social media.

JEL: M3, O3.

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1 Introduction

The Economist recently touted (with caution) Twitter as an effective mechanism for government *transparency*[1]. However, some skepticism must be preserved, as a confounding motive behind Twitter adoption is that of government *outreach*. As Felten (2009) concisely states: "outreach means government telling us what it wants us to hear; transparency means giving us the information that we, the citizens, want to get." Our paper attempts to tease out these two motives using a simple cost-benefit trade-off that underlies the adoption decisions[2] of those in the 111th House of Representatives.

Our work complements a recent paper by Golbeck, Grimes and Rogers (2010), who explicitly codify a subset of Twitter posts among members of congress. They find that a majority of posts (53 percent) provide a fact, opinion, link to article, position on article or resource. While this result is interesting, it does not resolve the debate as to whether Twitter is being used for outreach or transparency reasons. It is not obvious that information revelation is used exclusively to portray honesty, or push some agenda.

We use unique hand-collected data on the Twitter adoption decisions of members in the 111th House of Representatives. Ultimately, the study finds that a representative's propensity to adopt increases with the number bills he/she sponsored, which we argue is a proxy for the perceived benefit associated with government outreach through Twitter. When we look closer at the adoption decisions across parties, we find that the amount of support (from the 2008 election) matters for Democrats, while the number of bills sponsored matters for Republicans. We take this general finding as suggesting that Democrats and Republicans benefit from Twitter in different ways. A bolder claim from our study says that Democrats care about transparency, while Republicans care about outreach.

2 Research framework

2.1 Data

Our cross-sectional sample of observations consists of all active congressmen and women of the 111th House of Representatives. To obtain detailed controls about each representative, we use a combination of the information provided on their own personal websites, the Biographical Directory of the United States Congress. Using these sources of information, we can find out how long each

[1] See the article Sweet to Tweet. *The Economist*, May 8, 2010.

[2] The framework used here is similar to that of Forman, Goldfarb and Greenstein (2005), who investigate the relationship between location and internet adoption.

representative has been in office, incumbency status, the state and district he/she represents, how old they are, their gender, race, religion, education and previous occupation before serving the public. We augment this information with data from the 2000 U.S. Census for the districts that they represent, such as the population, median income and race distribution of their corresponding districts.

For each representative, we are able to identify whether they use Facebook, Flickr, MySpace, RSS, Twitter and/or Youtube[3]. We first consult each representative's URL to see whether they are on Twitter or not[4]. However, some representatives do not reveal this information on their website. Therefore, to get a complete set of Twitter users in the 111th House of Representatives, we also consult aggregating sites such as http://www.congressional140.com/tweeting.php or http://tweetcongress.org/list. An online search is also conducted to identify some Twitter account holders who are not listed on these sites[5].

The data also contains information about which committee(s) each representative belongs to. On average, each representative belongs to two committees. A representative's underlying interests and experience are major determinants as to which committees he/she will end up in. Moreover, each committee is chaired by a Democrat and has a ranked Republican member. Committees consist of disproportionately more Democrats than Republicans, so as to reflect the current proportion of Democrats in the House of Representatives. Finally, there are a total of 23 committees, each with a specific mandate and jurisdiction, that a representative can potentially be a member of.

From the Clerk for the House of Representatives, we obtain information about each representative's percentage of votes in the most recent 2008 election, as well as the number of bills that the representative has sponsored during the 111th session.

2.2 Empirical methodology

When each representative has to make a decision as to adopt Twitter or not, costs and benefit must be weighed. We will observe a representative adopting Twitter if and only if the net benefit, benefit minus cost, exceeds zero. It is natural to consider a simple probit model of adoption, where the latent utility is equal to the net benefit and some idiosyncratic noise. We now argue that certain variables in our data can be used to proxy for the latent utility, either through benefit or cost.

[3] All of this information was collected on the same day.

[4] We are also able to identify when they adopted Twitter by observing the date of their first Twitter post.

[5] Some care is taken in this procedure, as searches occasionally generated potentially fake Twitter accounts under the name of certain representatives. To avoid this dubious information, we only consider those representatives who have *verified* Twitter accounts.

2.2.1 Perceived benefit of adoption

We stipulate that the main factors in the perceived benefits of Twitter adoption are peer effects, outreach and/or transparency. Peer effects can increase the benefit of adopting Twitter, either through network or learning channels. As more of a representative's peers are also Twitter users, the utility associated with adopting Twitter also increases, as Twitter allows users to interact with one another through user-to-user replies. Alternatively, the amount of adoption among peers may yield a favorable signal about uncertain merit regarding Twitter's effectiveness as a political marketing tool. The amount of peer adoption is measured by the percentage of peer adopters, where peers are defined by social networks formed by common committees that representatives belong in[6].

Transparency is meant to keep each representative honest. Voters will reward those politicians they deem as being the most trustworthy. A representative who won the most recent election by a large margin has only a valuable reputation to lose. Therefore, Twitter gives each representative a public venue to share intimidate details about daily activities. A politician who has strong constituent support has an incentive to stay connected with his/her followers so as to maintain transparency. In this case, the percentage of votes from the 2008 election serves as a proxy for the strength of constituent support.

Alternatively, government outreach allows a politician to control the information that is released to his/her constituents. To some extent, a politician's brand can be protected or augmented through outreach. A member of congress who has sponsored a large number of bills will have a greater incentive to use Twitter as a way to push his/her political agenda by feeding the public mediated information. Reaching the public in this "grass-roots" manner may be especially important when the representative needs public support for his/her policy initiatives. Therefore, we use the number of sponsored bills during the 111th session as a proxy for the benefit associated with outreach.

[6] In a similar manner as Cohen and Malloy (2010), to avoid identification of peer effects off of social network size, we define

$$percentage\_same\_party\_adopters_i = \frac{number\_same\_party\_adopters_i}{number\_same\_party\_peers_i}$$

where $number\_same\_party\_adopters_i$ is a count of the number of same party adopters in the same committees as i, while $number\_same\_party\_peers_i$ is a count of the number of same party members in the same committees as i. To control for exogenous committee characteristics, we also include

$$percentage\_same\_party\_peers_i = \frac{number\_same\_party\_peers_i}{number\_peers_i}$$

where $number\_peers_i$ is the size of i's committee social network.

2.2.2 Perceived cost of adoption

As with the adoption of any technology, there are adoption costs. These costs, however, may be lower for representatives with prior knowledge or experience about social media; in particular, if they have had experience with similar social media outlets such as Facebook, Flickr, MySpace, RSS and/or Youtube. Given the close similarities between Facebook and Twitter, our prior is that Facebook serves as the best proxy for social media familiarity.

The use of Twitter is not free of opportunity costs, as posting Twitter messages uses up a representative's own time, or his/her staffer resources. Their opportunity cost should especially large if they belong to a number of committees. Time spent away from committee duties can have serious consequences on important policy decisions, especially so if a representative is a committee chair.

3 Results

Our results suggest that Twitter adoption is driven by both cost and benefit considerations. The proxies for MySpace, RSS, Flickr, Facebook and Youtube adoption have positive effects on the adoption of Twitter, especially so for Facebook. This result supports our hypothesis that those politicians who are tech-savvy face lower adoption costs than those who are not. Members of congress who belong to a large number of committees and/or are committee chairs are less likely to adopt Twitter, which suggests an opportunity cost associated with Twitter use.

A major benefit associated with Twitter is driven by peer effects[7]. The percentage of own party adopters within a committee network has a marginal effect of 1.02 (0.35). Using the entire sample, we find that the number of bills has a positive and significant influence on the propensity to adopt, while the percentage of 2008 votes does not matter. At first glance, this result suggests that outreach outweighs transparency when representatives formulate the benefits of adopting Twitter. However, if we repeat the cost-benefit analysis across party lines, we get a rather different picture.

The marginal effect[8] of the percentage of votes in 2008 is 0.58 (0.27) for Democrats, while it is 0.17 (0.48) for Republicans. This result supports the conjecture that the benefit associated with communicating with one's own constituents is largest for Democrats. Outreach serves as a more important benefit to Republicans, as the marginal effect associated with the number of bills is 0.01 (0.0044) as opposed to 0.003 (0.0024) for Democrats. Furthermore, we see that the marginal effect

[7] Peer effects may materilize through network or learning effects. Investigating this further is beyond the scope of this paper.

[8] Standard errors in parenthesis.

of the percentage of own party adopters within a committee network is 1.17 (0.52) for Republicans, and 1.50 (0.77) for Democrats, which suggests that peer effects impact adoption decisions across party lines.

A large concentration of Twitter adoption occurred around January 2009, which is the time in which a number of new staffers began to work for the representatives. This exogenous event may bias our estimates for the bills effect upwards, as the staffers likely assist in both the initiation of bills, as well as activity on Twitter. We attempt to control for this event by repeating the probit estimations, except omitting those representatives who adopted Twitter 100 days before or after January 20, 2009. Even after controlling for this event, the effect that the number of bills has on the rate of adoption is still significant, and especially so for Republicans.

A natural follow up question: *how does the benefit associated with outreach accrue?* We demonstrate that, at least for Republicans, the rate of adoption is higher if a representative has sponsored a large number of bills and belongs to committees with a large proportion of Democratic Twitter adopters[9]. The benefit associated with outreach is substantial if Twitter can be used to garner public support for certain policies, which in turn, generates support from political rivals. This benefit should be especially pronounced if a large percentage of rivals are also Twitter users, who consequently are more likely pay attention to peers' Twitter activity.

4 Summary

Our study uncovers heterogeneity in the benefits of Twitter adoption across political parties, which leads us to conclude that transparency matters for Democrats, while outreach matters for Republicans. We later show that the perceived benefit of outreach is related to the impact it could have in influencing political rivals who are also on Twitter. In general, this paper provide additional insight into the recent popular culture debate about Twitter's relevance in effective government communication, using a standard economic model of innovation adoption along with unique hand-collected data.

References

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Table 1: Summary statistics

Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
Twitter adoption	0.418	0.494	0	1	438
log(Population)	13.364	0.214	10.96	15.2	438
log(Income)	10.643	0.262	9.620	11.43	438
Percentage black	12.637	15.963	0	96.400	438
Gender	0.167	0.373	0	1	438
Black	0.082	0.275	0	1	438
Catholic	0.292	0.455	0	1	438
Law	0.352	0.478	0	1	438
Ivy league school	0.098	0.298	0	1	438
Age	57.333	10.16	28	86	438
Incumbent	0.861	0.347	0	1	438
Tenure	9.550	8.711	0	54	438
Democrat	0.598	0.491	0	1	438
Party votes	0.516	0.1	0	0.96	432
Representative votes	0.656	0.125	0.27	1	427
Number of committees	1.936	0.826	0	4	438
MySpace	0.014	0.116	0	1	438
RSS	0.573	0.495	0	1	438
Flickr	0.151	0.358	0	1	438
Facebook	0.571	0.496	0	1	438
Youtube	0.731	0.444	0	1	438
Bills	18.018	12.45	0	96	438
Chair	0.103	0.304	0	1	438
Percentage same party adopters	0.403	0.182	0	0.889	438
Percentage other party adopters	0.461	0.189	0	0.889	438
Percentage same party peers	0.512	0.148	0	1	438
Percentage other party peers	0.459	0.142	0	0.697	438

Table 2: Baseline probit regression results. Column (1) contains the full set of observation. Column (2) uses only the subset of representatives who are members of the Democratic party, while column (3) uses only the subset of representatives who are members of the Republican party.

	(1)		(2)		(3)	
	Full sample		Democrat		Republican	
log(Population)	0.372	(1.593)	2.420	(2.546)	-3.065	(2.181)
log(Income)	0.171	(0.314)	0.722	(0.454)	-0.503	(0.535)
Percentage black	0.00491	(0.00557)	-0.00201	(0.00762)	0.0250	(0.0142)
Gender	0.165	(0.178)	-0.0762	(0.233)	0.904*	(0.394)
Black	-0.582	(0.342)	-0.370	(0.421)		
Catholic	0.0492	(0.161)	0.0703	(0.209)	-0.255	(0.293)
Law	-0.0613	(0.149)	0.0511	(0.206)	-0.218	(0.238)
Ivy league school	0.383	(0.227)	0.465	(0.263)	0.549	(0.527)
Age	-0.0120	(0.00821)	-0.00288	(0.0111)	-0.0229	(0.0154)
Incumbent	-0.376	(0.234)	-0.355	(0.305)	-0.561	(0.434)
Tenure	-0.00910	(0.0115)	-0.0112	(0.0139)	-0.00549	(0.0206)
Democrat	-0.474	(0.549)				
Party votes	-0.0695	(0.688)	-0.498	(0.904)	-1.409	(1.337)
Representative votes	1.236	(0.657)	1.869*	(0.863)	0.444	(1.285)
Number of committees	-0.132	(0.104)	-0.0628	(0.159)	-0.168	(0.156)
MySpace	1.099	(0.726)			-0.316	(0.661)
RSS	0.264	(0.146)	0.466*	(0.196)	-0.0834	(0.241)
Flickr	0.407*	(0.187)	0.237	(0.258)	0.579*	(0.295)
Facebook	0.709***	(0.154)	0.929***	(0.214)	0.521*	(0.257)
Youtube	0.0744	(0.183)	0.102	(0.236)	0.273	(0.351)
Bills	0.0144*	(0.00577)	0.00926	(0.00775)	0.0281*	(0.0118)
Chair	-0.186	(0.246)	-0.177	(0.360)	-0.128	(0.356)
Percentage same party adopters	2.625**	(0.907)	4.831	(2.473)	3.124*	(1.398)
Percentage other party adopters	0.762	(0.695)	0.112	(1.227)	1.078	(1.497)
Percentage same party peers	-1.465	(0.822)	-2.099	(1.128)	-4.358	(3.719)
Percentage other party peers	-1.925	(1.096)	-1.625	(2.113)	-0.980	(1.801)
Constant	-6.981	(21.42)	-41.65	(34.44)	48.22	(30.21)
Observations	427		249		175	
McFadden R^2	0.222		0.192		0.206	
BIC	616.6		380.0		315.5	

Robust standard errors in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 3: Probit regression results using a sub-sample of representatives who did not adopt Twitter in December 2008, January 2009 and February 2009. Column (1) contains the full set of observation. Column (2) uses only the subset of representatives who are members of the Democratic party, while column (3) uses only the subset of representatives who are members of the Republican party.

	(1)		(2)		(3)	
	Full sample		Democrat		Republican	
log(Population)	0.674	(2.159)	3.417	(2.826)	-7.397	(4.261)
log(Income)	0.0263	(0.357)	0.320	(0.523)	-0.756	(0.842)
Percentage black	0.00511	(0.00651)	-0.000963	(0.00831)	0.0273	(0.0153)
Gender	0.312	(0.215)	0.101	(0.268)	1.319*	(0.596)
Black	-0.506	(0.400)	-0.261	(0.474)		
Catholic	0.137	(0.189)	0.259	(0.240)	0.0991	(0.471)
Law	-0.167	(0.176)	0.0237	(0.232)	-0.918*	(0.365)
Ivy league school	0.421	(0.269)	0.478	(0.308)	1.339	(0.757)
Age	-0.0136	(0.00945)	-0.0107	(0.0128)	-0.0118	(0.0190)
Incumbent	-0.452	(0.290)	-0.400	(0.356)	-0.965	(0.608)
Tenure	0.00363	(0.0131)	0.00348	(0.0165)	0.0228	(0.0274)
Democrat	-0.596	(0.619)				
Party votes	-0.327	(0.810)	-0.258	(1.230)	-2.384	(2.164)
Representative votes	1.081	(0.788)	1.475	(0.982)	1.371	(1.838)
Number of committees	-0.0968	(0.119)	-0.0177	(0.178)	0.0581	(0.226)
MySpace	0.899	(0.859)			-0.108	(0.775)
RSS	0.302	(0.171)	0.414	(0.218)	0.233	(0.391)
Flickr	0.488*	(0.223)	0.429	(0.288)	0.454	(0.629)
Facebook	0.712***	(0.190)	0.921***	(0.267)	1.257**	(0.448)
Youtube	0.0536	(0.215)	0.138	(0.273)	-0.487	(0.511)
Bills	0.0188**	(0.00659)	0.0111	(0.00900)	0.0546***	(0.0161)
Chair	-0.279	(0.260)	-0.245	(0.390)	-0.0502	(0.481)
Percentage same party adopters	2.083	(1.095)	6.137*	(2.796)	2.465	(2.054)
Percentage other party adopters	0.848	(0.766)	-0.0149	(1.333)	0.938	(2.193)
Percentage same party peers	-1.387	(0.899)	-2.762*	(1.298)	-6.956	(5.098)
Percentage other party peers	-1.865	(1.305)	-1.676	(2.309)	0.349	(2.434)
Constant	-9.549	(29.22)	-50.69	(38.19)	107.1	(59.19)
Observations	341		221		99	
McFadden R^2	0.196		0.204		0.295	
BIC	482.0		310.6		200.5	

Robust standard errors in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 4: Probit regressions with interactions. Column (1) contains the full set of observation. Column (2) uses only the subset of representatives who are members of the Democratic party, while column (3) uses only the subset of representatives who are members of the Republican party.

	(1)		(2)		(3)	
	Full sample		Democrat		Republican	
log(Population)	0.358	(1.592)	2.426	(2.541)	-2.839	(2.163)
log(Income)	0.165	(0.314)	0.717	(0.454)	-0.521	(0.532)
Percentage black	0.00491	(0.00555)	-0.00193	(0.00762)	0.0204	(0.0141)
Gender	0.170	(0.179)	-0.0732	(0.234)	0.787*	(0.388)
Black	-0.565	(0.341)	-0.362	(0.419)		
Catholic	0.0488	(0.161)	0.0711	(0.209)	-0.237	(0.301)
Law	-0.0606	(0.149)	0.0528	(0.205)	-0.217	(0.240)
Ivy league school	0.375	(0.227)	0.458	(0.265)	0.506	(0.528)
Age	-0.0121	(0.00823)	-0.00296	(0.0112)	-0.0206	(0.0158)
Incumbent	-0.379	(0.234)	-0.358	(0.305)	-0.538	(0.437)
Tenure	-0.00895	(0.0115)	-0.0110	(0.0140)	-0.0126	(0.0209)
Democrat	-0.518	(0.557)				
Party votes	-0.0443	(0.691)	-0.488	(0.904)	-1.567	(1.335)
Representative votes	1.244	(0.656)	1.874*	(0.860)	0.389	(1.347)
Number of committees	-0.131	(0.103)	-0.0624	(0.159)	-0.209	(0.158)
MySpace	1.088	(0.723)			-0.205	(0.666)
RSS	0.261	(0.147)	0.465*	(0.196)	-0.0972	(0.241)
Flickr	0.405*	(0.187)	0.241	(0.258)	0.604*	(0.292)
Facebook	0.712***	(0.155)	0.927***	(0.214)	0.473	(0.259)
Youtube	0.0768	(0.183)	0.104	(0.237)	0.215	(0.355)
Bills	0.0194	(0.0140)	0.0138	(0.0236)	-0.0891	(0.0643)
Chair	-0.187	(0.246)	-0.188	(0.366)	-0.0949	(0.363)
Percentage same party adopters	2.564**	(0.917)	4.827	(2.474)	2.736	(1.444)
Percentage other party adopters	0.979	(0.899)	0.275	(1.443)	-3.349	(2.999)
Percentage same party peers	-1.425	(0.822)	-2.076	(1.130)	-3.171	(3.754)
Percentage other party peers	-1.922	(1.096)	-1.599	(2.110)	-1.504	(1.800)
Bills * Percentage other party adopters	-0.0103	(0.0270)	-0.00782	(0.0386)	0.418	(0.222)
Constant	-6.804	(21.40)	-41.80	(34.40)	46.91	(29.82)
Observations	427		249		175	
McFadden R^2	0.222		0.192		0.220	
BIC	622.5		385.5		317.4	

Robust standard errors in parentheses

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$